

**O35****Retrospective monocentric study on 64 teenagers treated by brace for Scheuermann's disease: evaluation of disability and quality of life once brace has been removed**

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"This abstract has not been included here as it has already been published."

**O36****Orthotic treatment in patients with adult onset spinal deformity (AS): a systematic review**

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**Introduction**

Studies from the USA have estimated the incidence of spinal deformity in the adult population (mean age 70.5 years) at up to 68% (Schwab et al., 2005). Patients with AS are increasing being referred to orthotists and other medical and allied health professionals for problems relating to increasing spinal deformity. Patients generally present with spinal pain, reduced mobility, decreased function and low self-esteem. Given the non-invasive nature and relatively low cost of orthotic treatment together with the increasing demographic of older people in the UK as well as worldwide, it is highly likely that orthotic referrals will increase significantly in the near future.

**Objectives**

To evaluate the efficacy of orthotic treatment in patients with adult onset spinal deformity (scoliosis or kyphosis).

**Methods**

Search Strategy: The following databases were searched with English Language limitations: NTIS, OpenGrey.org On-going research via online professional forums and other expert opinion, BAPO, ISPO AAOP - JPO AAOP CPO, CAPO, CENTRAL - Cochrane Library, EBSCO including, Cinahl -full text, MEDLINE AMED. Limiters to "all adult". English language only. Selection criteria: Randomised controlled trials, prospective cohort studies, quasi experimental designs, comparing orthotic treatments with no treatment, and other non-surgical interventions and co- interventions.

**Results and discussion**

Only four studies that matched the inclusion criteria were found. These included a randomised cross-over trial (Pfeifer, Begerow and Minne, 2004), a single blinded trial (Azadinia et al., 2013), Sinaki et al's study (2005) which had a quasi-experimental design and the final study which was a randomised, placebo control trial (Vogt et al., 2008). This systematic review looked for high quality evidence regarding the orthotic treatment of adult onset spinal deformities. The four papers that were found and reviewed, related to orthotic treatment of kyphosis in subjects of over 60 years of age all of which reported improved balance scores, reduction of deformity, muscle strength and pain after orthotic treatment. All four studies had a number of inherent weaknesses in study design, and to various extents internal and external validity. Given this and the small number of reports discovered the results should be viewed with caution.

**Conclusion and significance**

Given the predicted change in the age demographic worldwide, to a more elderly population, the authors recommend further research into the orthotic treatment of AS with particular emphasis placed on the full reporting (ie: comprehensive description of the orthotic design, material/construction) of the orthoses used, using valid and appropriate patient-oriented outcome measures. Finally, research is needed to establish the specific elements of orthotic design/materials that are important in producing positive outcomes. Establishing the

precise relationship spinal orthosis design and construction and positive outcomes could lead to lighter and more effective devices with increased patient compliance in patients with AS.

**O37****Peak scoliosis brace can reduce pain in adults with painful scoliosis: results from a prospective cohort study**

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**Introduction**

Adult scoliosis is sometime associated to back pain and severe curves can progress over time. The main approach for these patients is the surgical one, however surgery is not appropriate for all patients, and certain patients do not accept surgery. Despite scoliosis has been estimated to affect up to 68% of the population over 60, there is scant literature about conservative treatment for adult scoliosis. Custom fabricated rigid torso braces, similar to those commonly used for children are sometime used in adult patients, however, the goal of these braces is to correct and/or sustain the sagittal plane of patients, no data have been published on the efficacy of these braces in pain relief, and such braces are typically not well tolerated by adults. Recently a new brace has become available, the Peak<sup>a</sup> Scoliosis Brace (Aspen Medical Products) designed to alleviate pain for adult patients with chronic pain secondary to scoliosis.

**Objectives**

To test the efficacy of the Peak<sup>a</sup> Scoliosis Brace in reducing pain in adult scoliosis patients.

**Methods**

Design: prospective experimental cohort study. Population: 20 adults with back pain secondary to Idiopathic Scoliosis. The sample size calculation based on a pilot study. Inclusion criteria: Adults affected by Idiopathic scoliosis of 30° Cobb or more and chronic low back pain (cLBP). Exclusion criteria: secondary scoliosis. Outcome measures: NRS, Oswestry Disability Index (ODI), Roland Morris Questionnaire (RM), COMI. Statistical analysis: paired t-test. Protocol: patients were evaluated at baseline immediately before starting with the brace and after 1 month. The brace must be worn for at least 2 hours per day.

**Results and discussion**

Twenty out of 29 eligible female patients entered the study (age 67.8 ± 10.5, curve 61.9 ± 12.6° Cobb). We had no drop out. Worst pain (back or leg) and leg pain significantly improved from 7.15 to 5.85 and from 5.65 to 3.55 ( $p < 0.05$ ), while back pain improvement didn't reach statistical significance. Six patients achieved the minimal clinically important difference of 2 points for worst pain, 12 for leg pain. RM improved ( $p < 0.05$ ), no differences for ODI and COMI score.

**Conclusion and significance**

The Peak Scoliosis brace showed a significant improvement at 1 month of worst pain and leg pain in a group of adult women with scoliosis and cLBP. Back pain slightly improved, but the change was not statistically nor clinically significant. Also the quality of life didn't change in a significant way even if the patients reported satisfaction with the treatment. The follow up time was really short, it's possible that a longer treatment could be more effective.

**O38****Prospective study of 618 lumbar scoliosis treated with the short polyethylene detorsion brace GTB1**

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**Introduction**

Fifty years ago the majority of North American braces were made in delordosis and extension. In Europe, the 3 points brace of Michel and Allegre was essentially a translation system in the frontal plane